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THE PSYCHOLOGICAL PROFILE IN AIRCRAFT ACCIDENT

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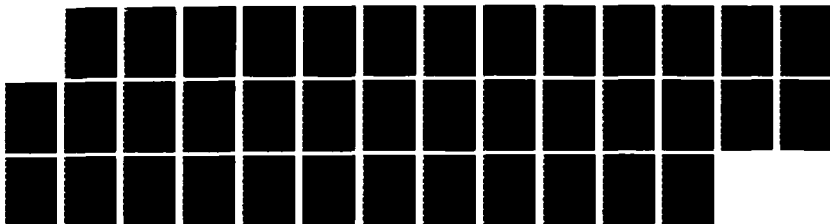
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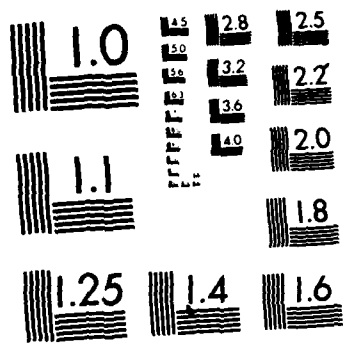
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THE PSYCHOLOGICAL PROFILE IN
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Pilot error is consistently cited as a major source of aircraft accidents. There are many types of pilot errors or human factors cited as possible causes contributing to a mishap and can include such areas as attention, learning, memory, intelligence, decision-making, motivation, psychomotor skills, selection, human engineering, ergonomics, and personality (~~Bond et al., 1962~~; Farmer, 1984). Human factors as evidence in aircraft accidents has been both championed and condemned (~~Parker, 1984~~).^c This paper will look at yet another tool of human factors with the idea of looking at contributing causes to mishaps, building a database of some of those intangible areas of people, and looking for a profile to predict and prevent future mishaps occurring. This tool is a psychological autopsy/profile. *R*

There is a preference to name this investigation tool psychological profile so it may be applied to those pilots or individuals who are alive as well as deceased. Calling it a psychological autopsy limits it to a post-mortem use. However, the psychological autopsy will be discussed, since the profile has its roots there.

HISTORY OF THE PSYCHOLOGICAL AUTOPSY

Death is classified by both cause and mode by a physician. The choice is among 140 possible causes as listed in the International Classification of Diseases and

Causes of Death, but only four modes; natural, accident, suicide, and homicide (Shneidman, 1977). While the cause of death may be apparent, e.g. asphyxiation due to drowning in a swimming pool, the mode is not always so clear cut. This is where a psychological autopsy comes into being. A psychological autopsy focuses on clarifying the mode of death by looking at the intention of the decedent-that is, the decedent's intention relating to his being dead-where the information is obtained by interviewing individuals who knew the decedent's actions, behavior, and character well enough to report on them (Shneidman, 1977).

The first recorded psychological autopsy was performed in 1958 by Robert E. Litman, M.D., at the request of Theodore Curphey, M.D., then Los Angeles County Medical Examiner-Coroner, who asked for help to accurately determine whether a death was an accident or a suicide. The case involved a 46-year-old man who drowned as a result of going off a pier. One witness stated the victim stood in front of the guard rail and jumped into the ocean, while other witnesses contradicted this description. Dr. Litman interviewed the witnesses and the family of the deceased and determined the man had passed out or fell asleep on the bench after consuming a large amount of wine and slipped through the railing to drown. His mood had been in good spirits with no signs of depression. As a result the death was ruled as accidental (Diller, 1979).

Dr. Curphey also became frustrated with a number of drug deaths for which he was unable to certify the mode of death. These uncertain or unclear deaths are called equivocal deaths. He invited Norman Farberow, Ph.D. and Edwin S. Shneidman, Ph.D., then Co-Directors of the Los Angeles Suicide Prevention Center, to assist him in a joint study of those equivocal deaths. It was this effort, a multidisciplinary approach involving behavioral scientists, which led Dr. Shneidman to coin the term "psychological autopsy." (Shneidman, 1977) The psychological autopsy attempts to answer three questions; (1) Why did the individual do it? A reconstruction of the motivations, philosophy, psychodynamics, and existential crises of the decedent. (2) How did the individual die, and when-that is, why at that particular time? This looks at the sociopsychological reasons why people die after a severe social stress. (3) What is the most probable mode of death? This was the question that started the psychological autopsy to determine if an asphyxiation due to drowning was intentional or accidental or a barbiturate intoxication due to overdose was suicidal or accidental (Diller, 1979; Shneidman, 1977).

CURRENT USES OF THE PSYCHOLOGICAL AUTOPSY

The original use continues to contribute to classify the mode of death in equivocal cases and Institute for

Studies of Destructive Behaviors and the Suicide Prevention Center in Los Angeles are called in on questionable cases by the Los Angeles Medical Examiner-Coroner (Litman, 1986). Hospitals not only use the psychological autopsy to examine suicides as a means to develop more and better suicide prevention programs within the framework of open wards and progressive treatment practices (Kreiger, 1968), but also to review the circumstances around a suicide of a hospitalized patient looking for the clues given by the patient and how the staff handled those clues (Neill et al., 1974). Weisman and Kastenbaum (1968) use the psychological autopsy to look at the preterminal and terminal phases of life for recently deceased patients to determine the role of psychosocial factors in their death. The forensic sciences also use the psychological autopsy as an analytical statement, prepared by mental health professionals, based upon the deceased's expressed thoughts, feelings, and reports of behavior (Thibault, 1984; Hibler, 1983). Use of the psychological autopsy is not limited to the United States, as Rudestam (1979) reports of his interviewing family survivors in Stockholm, Sweden, and gives recommendations of training interviewers and how to contact the surviving family members. One recent legal use of a psychological autopsy was by Fowler (1986), who was asked to conduct a psychological autopsy on Howard Hughes by one of the lawyers associated with the Hughes estate. The question was about Hughes'

mental status and level of functioning at various periods of his life. This autopsy had an impact in the saving of millions of dollars for the Hughes estate in legal actions backed up by affidavits and testimony given by Dr. Fowler.

APPLICATION TO MISHAP INVESTIGATION

At this point I wish to extend the psychological autopsy and name it the psychological profile. There have been references to the importance of human factors in mishap investigation with the U.S. Armed Forces, the Human Performance Group of the National Transportation Safety Board (NTSB), and the International Civil Aviation Organization (ICAO) (Parker, 1984). The ICAO Manual (1970) suggests contributory causes may lie in such areas as attitude, motivation, emotional effect, and perseverance, but cautions to use factual evidence when supporting such psycho-physiological factors. Skjenna (1981) suggests looking at the pilot's history to include a description of training and past experience, as well as his occupational and social environment. He calls it a form of "psychological post mortem report." However, as usual, there is not much agreement between the various organizations, nor is there any standardized approach on how human factors will be categorized or put in a database for all to use. An excellent tool towards standardization has

been what is called a psychosocial reconstruction inventory (Yanowitch, Mohler, and Nichols, 1972).

Yanowitch and his associates applied an inventory to more than a dozen fatal general aviation accidents in 1971. A lifestyle profile on each was developed from interviews of family members and close associates of the deceased by a psychiatrist. The information was used to present a history of psychosocial development of the victim and any pre-accident deterioration. A lifestyle picture emerged, touching on basic beliefs, attitudes, aptitudes, experiences, and accomplishments of the victim. General behavioral characteristics and relatively recent life events and changes were noted. In the three cases cited, the first revealed an overwhelming number of social stresses (criminal charge of arson, possible civil suit, overdue taxes, spouse suffering from cancer and attempting suicide) strongly indicating the probable mode of death of the pilot as intentional suicide. The second case revealed some stressors on the pilot (an embarrassing arrest, marital separation, and an impulsive and violent vindictive personality), but what was even more revealing was the sociopathic personality and suicidal behavior of his female companion on that fatal flight. Her influence was a noted factor in the accident that mixed alcohol intoxication with fuel exhaustion of the aircraft. In the third case, the inventory revealed an individual with a personality that

demanded total control of his life. When this control began to slip away with the probable mental deterioration of his wife, he planned to fake his death in an airplane crash and assume a new identity. He survived the crash, but drowned as he swam from the wreckage. These examples illustrate how a more detailed investigation of the psychosocial factors went beyond the sparse routine data collection by the FAA, NTSB, and other authorities to shed valuable information on the "why" of the accident. Both short and long time periods before the accident need to be assessed.

Quite often a 72-hour detailed history is called for on the individuals involved in the mishap (EG&G, 1986; Hibler, 1983; McNaughton, 1984; Skjenna, 1981). This allows short term stressors to be seen, however, investigators may be asked to think of patterns in terms of weeks, months or even a year prior to the mishap. This allows a long term pattern to be seen and is supported by Holmes and Rahe (1971) who investigated the long term and cumulative stresses of life events. These life events were applied to U.S. Navy aircrew with a positive correlation seen between a higher number of stressful life events and mishaps (Alkov, 1975; Alkov, 1979; Alkov, 1981; Alkov et al, 1982).

Again looking at those events or stressors that occur close in time to an accident, some accidents seem to vary as a function of a person's temporary mood (Schultz & Schultz, 1986). A person who is angry with a spouse, child or boss,

or angry with an anonymous driver who cuts ahead on the highway in the morning, or the person who is worried about money matters or family affairs is likely to be less attentive on the job and, therefore, more susceptible to accidents. Closely related stresses are those minor hassles or insults of everyday life (Lazarus, 1981).

These low level sources of strain produce wear and tear on the body because there are so many of them and they tend to accumulate. Lazarus found that the most frequently mentioned little hassles were concern about weight; health problems of a family member; the rising prices of consumer goods; having too many things to do; misplacing or losing things; worries about property, investments, and taxes; crime; and concern about one's physical appearance. Pelletier(1984) sees these little irritants of everyday life occurring so frequently as more harmful to mental and physical health than the less frequent of major traumatic events.

Baer (1984) points out that mishap investigations should consider stress, but stress should not become the new "pat" answer like "pilot error" had become. He recommends looking at the inability to cope with stress rather than the simple presence of stress as the problem. The goal of any mishap investigation involving stress should be looking at what signs and symptoms were present to allow detection and intervention.

USE OF THE PSYCHOLOGICAL PROFILE

The specific purpose of the psychological profile is to form a logical understanding of the an individual involved in a mishap. A majority of the time the individual will likely be deceased, but not necessarily so. He may be comatose, physically or mentally incapacitated. The psychological profile may be applied to mishaps in general, but this paper will concentrate on aircraft accidents. The profile will be based on tangible physical evidence, documented life events, descriptions of behavior, interviews with friends, relatives, and associates, and look at some intangible emotional factors.

A look at the individual's personality becomes the beginning. This is followed by a look at what stressful events occurred in their life and their reactions to those events. The result is a "word picture" of the individual's strengths and weaknesses, how they lived their life, how they handled stress, psychological defenses, habits, moods, and behavior. The psychological profile may help rule out possible contributing factors like depression, suicidal intentions, psychosocial stressors or may show these to be contributing to the mishap.

In gathering the information it is expected that the interviews with relatives, friends, co-workers will give a diverse and different view of the individual. This is

simply the different viewpoints of the interviewees because of the different roles and responsibilities carried in all of the different relationships we have. When compiled and compared, a total picture or personality will begin to emerge. In this picture will be an idea of how the individual dealt with stressful events and if a sum of events presented an overwhelming amount to this particular individual. Every individual has their own set of unique physical, mental and emotional limits. People are able to push themselves and work beyond their limits for a period of time before something breaks.

A mental health professional may assist with at least three areas of the psychological profile. The first is an education and experience in human nature, normal and abnormal reactions to life events, and coping styles of people which gives clues to the personality of the individual. The second is the experience of dealing with death and grief reactions. This becomes vital when interviewing relatives of the individual where bereavement counseling may play a part of the interview and a proper referral for grief counseling may be appropriate (Diller, 1979; Hibler, 1983; Shneidman, 1977). The third and maybe most important is the familiarity with preparing a psychological profile report. This analytical report is sometimes speculative and warrants caution to those preparing the report and to those reading and using the

report. Mental health professionals are sometimes called upon to predict human behavior and sometimes do not do well, however, the best prediction of anyone's behavior is by taking a good look at their past behavior (Shneidman, 1977). This also holds true on a psychological profile explaining a person's behavior or actions.

SOURCES OF INFORMATION

The two main sources of information will be record reviews and interviews. Records may provide a rich amount of information and interviews can clarify or reveal additional key information.

Records can include those of the unit or company and may disclose data on age, education, work history, marital status, children, job efficiency, letters of commendation or counseling, unfavorable information, names of supervisors, training reports, promotions, demotions, extra duties, job changes, medical problems, surgical operations, past and present illnesses, medications, work restrictions, mental health records, letters, notes, diaries, finances, and bills (Mason, 1984). Other records of legal or pastoral counseling as well as some of those mentioned above may be protected by professional confidentiality. Information may be releasable through the family members or at least information about the individual pursuing counseling of some sort will shed more light for the psychological profile.

Interviews or official inquiries into a death generally receives little resistance (Shneidman, 1977). There may be a tendency to tell of only the good side or "Speak well of the dead." As mentioned before, grief counseling may be necessary to occur in the interview which may allow information to be given out. There are at least two approaches to an interview: open or structured. There are advantages and disadvantages to both, so the best approach may be a combination of the two. An open interview with a structured list of questions or areas to be covered. A direct appeal for the interviewee's help may assist in clarifying the purpose of the interview and help develop the high degree of needed rapport (Hibler, 1983). Shneidman (1977) states the interview is a gentle mixture of conversation, interview, emotional support, general questions, and a good deal of listening. A good opening question may be, "Please tell me, what was (Name of the deceased/victim) like?" In some situations, the questions may be very painful and the mental health of the survivors is important.

This opens up the interview for a description of the personality and lifestyle of the individual. Describing the personality has kept mental health professionals busy for years and is no easy task. Some studies and categories may help shed some light on the variety of personalities and behaviors. Dr. Evan Peelle adopted two broad

classifications of pilot behavior: effective and ineffective (Pope, 1986).

The effective pilots were those who were seen to be seekers of information, listened, rewarded rather than punished, built two-way communications and taught or coached others. They could see the whole picture and did not become lost in details. Meanwhile, the ineffective pilots were seen as the macho or "security" types. The macho pilot was authoritarian and dictatorial, failed to seek input, attempted to do it all, non-communicative, overreacted to mistakes, was punitive without rewarding or recognizing good work and had unrealistically high expectations for himself and others. He was argumentative, critical, and difficult to work with. The second type of ineffective pilot was the "security" pilot who was indecisive, did not plan, let the co-pilot run the flight, set low standards for himself and others, and accepted inferior performance. He also had a high desire to be liked by others, to not question and to avoid conflict and confrontation.

At Embry-Riddle Aeronautical University, Jerome Berlin found in an aircraft accident an individual may fit one or more of five hazardous thought patterns: Anti-authority, Invulnerability, Impulsivity, Macho, and External-control (Crane, 1984).

The anti-authority are those who resent it when others have control or authority over them. They ignore rules and regulations in favor of doing it their own way. They could be summed up with the statement, "Don't tell ME what to do!"

The invulnerability thought pattern is what makes bullets bounce off Superman's chest. This makes people assume nothing bad will happen to them, that accidents will only happen to other people. "NOTHING will happen to me!" is the summing statement.

The impulsivity thought pattern has the person acting on an impulse without thinking through a situation. There is no exploration of possible actions and choosing the best one. Impulsive people do the first thing that they think of, "Do something -- NOW!"

The macho attitude is constantly trying to prove themselves and impress others by doing dangerous things. It is the drive to gain attention and approval of others and it is the idea that caution is for "wimps". This is not exclusively a male attitude. The summing statement is, "I can do it!"

The external control attitude is the idea that people can do little or nothing to control situations. It is the fatalistic attitude of, "What's the use?" Good things are thought to be just "good luck," and troubles are chalked up to "bad luck" or the fault of another person. The summations is "It's OUT of my hands."

The point here is that not only pilots possess these personality traits and can be seen in one form or another in the people around you no matter where you work. If we could simply label and categorize people, could we also predict accident proneness?

In the search for an accident-prone personality-that certain people are more likely than others to have accidents-studies of aircraft and motor vehicle accidents have given mixed results. To have an accident-proneness test to discriminate between high and low scorers is an answer to the dreams of managers and safety personnel. To be able to predict accidents is still elusive, but the search continues.

Three of 22 questions asked to aviators and aviation support personnel on an aircraft carrier were found to correlate significantly with injuries and accidents during a cruise (Levine, Lee, Ryman, and Rahe, 1976). The significant questions dealt with adventurousness or attitude towards risk taking. Three scales of a psychological test (Cattell's 16 PF): imagination, shrewdness and group-dependency, discriminated between accident-involved and accident-free US Army aviators (Sanders and Hofmann, 1975). However, a later study by Sanders, Hofmann, and Neese (1976) failed to replicate the original findings.

More personality traits were correlated with accidents among U S Navy aircrew and included difficulty with interpersonal relationships, immaturity, and little sense of humor or humility (Alkov and Borowsky, 1980). The findings were obtained from flight surgeons and may have been influenced by their intimate knowledge of the accident involvement of the aircrews.

Social maladjustment had been previously implicated in vehicular accident studies. High risk drivers were found to exhibit antisocial qualities (Conger, Gaskill, Glad, Rainey, Sawrey, and Turrell, 1957). Shaw and Sichel (1971) suggest that accident repeaters are less emotionally stable, are hostile toward authority, are high in anxiety, do not get along well with others, and have erratic work histories. Low conformity and high aggression were found to be associated with accident involvement (Shere and Priel, 1972). McGuire (1976) found that a group of drivers with high accident rates were excessively ambitious and revengeful, but were also afraid and fatalistic. The low accident group did not display these traits to the same degree.

Extraversion was a personality dimension that showed promise as an accident predictor, but has not been consistently reliable. Farmer (1984) cites five studies that found poor safety records, convictions for careless

driving, and accident proneness linked high scorers on extraversion, but counters with two other studies that found low scorers on extraversion linked to driving accidents.

These and other findings do not offer a simple profile of an accident-prone personality. Some personality traits as extraversion and social adjustment do seem linked to accidents, but not with the strength to predict. Another study that lends little support to the accident-proneness theory analyzed the driving records of nearly 30,000 persons (Schultz and Schultz, 1986). It found that less than 4 per cent of the people accounted for more than 36 per cent of the accidents in a six-year period. This certainly suggests accident-proneness, however, the accident records were reanalyzed comparing the first three-year period with those of the second three-year period. This time it became clear that the accidents did not involve the same drivers in the two time periods. Those judged safe in the first time period became involved in 96 per cent of all the accidents in the second three-year period. The supposedly unique personality traits of accident-proneness did not predict or deliver similar results over the two successive time periods of three years. This damages the theory of accident proneness. Accident proneness may be specific to the situation and may have catalysts like stress, weakened stress coping mechanisms or temporary emotional states that

combine with an extrovert or socially maladapted person to result in a mishap. Meanwhile the search continues to describe personalities.

A thousand word checklist could be devised, but it would not give us a complete picture of the individual because people are so complex and adaptable, however, there are certain areas of the personality that are of interest. Discipline is important and includes control, planning, preparation, mental rehearsal, decisiveness, professionalism, rule and regulation compliance. Temperament also is important and includes character, aggressiveness, confidence, self reliance, predictability, impulsiveness, disposition, competitiveness, conservativeness, and maturity (McNaughton, 1984).

Other areas that are important in a psychological profile include typical patterns of reaction to stress, emotional upsets, recent upsets, pressures, tensions, or anticipations of trouble, role of alcohol or drugs in their overall lifestyle, nature of interpersonal relationships, habits, and behavioral/emotional changes (Hibler, 1983; Shneidman, 1977).

SUMMARY AND RECOMMENDATIONS

Human factors in mishap investigation is receiving widespread interest. As with most mishap investigation, the gathering of facts and discovery of probable causes after the fact is geared to prevent future mishaps. What is proposed is a tool that may be applied not only after the fact. This tool is the psychological profile. A database after the fact may be needed to give this tool validity, reliability and predictability. The idea is to be able to use a psychological profile before a mishap occurs for true prevention. A profile that is similar to the ones of injured or deceased individuals are a definite red flag of warning. The psychological profile is based on the psychological autopsy which has been in use for over 25 years. The proposal is to make an intervention before it is too late. After every accident one hears how everyone knew that person was unsafe or heading for an accident, but everyone failed to interfere or intervene. There is a tendency to not want to interfere or destroy another person's job or career, but the alternative is injury and death. Flying is a demanding and stressful occupation. We expect the aircrew to perform their job in spite of worries, fatigue, mental slowness, and minor illnesses. Certainly, if there is a major illness then pilots are excused from their duties, however, the expectation and pressure to fly,

complete the mission, or meet schedules are tremendous. There is no one in a better position to assess the personal situation than the aircrew itself, but there are penalties to be paid when the pilot opts to remove himself from a flight, so the pilot will press on to save face, meet peer and company expectations, and meet schedules. The pilot weighs the controlled risk of flying impaired against death and sometimes loses-big. There is truth to the comment that management is instrumental in all accidents and plays a silent role. What is recommended is a preflight checklist that a pilot and others can use on the pilot before flying to prevent accidents that are blamed on pilot error. Appendix 1 is a guide for covering seven areas in developing a psychological profile of an accident victim(s). Appendix 2 is an adaption of the widely used Life Events Scale. Their use can assist both investigators and pilots in their quest for reducing accidents to the least possible. All too often accident causes and results are repeated. We still rely on others to help us make it through this journey called "life."

DEVELOPMENTAL HISTORY

The developmental years are the most influential period of life. Sources-family, spouse, friends, medical records, school records, etc.

Cultural history

Reared where? city, suburbs, farm, what state/country, permanent/transient home

Parents? ages, occupations, educational levels

Reared by whom? single parent, biological parents, step-parent, brother, sister, grand-parent
reveals directions, strengths, conflicts, need to achieve, early reactions to authority

Who else lived in house? family constellation

Birth order: eldest, middle, or youngest child

Siblings: number, age differences, sex, relationships - sibling rivalry, relationships with others, responsibility to others

Home environment: discipline methods, permissiveness, attitudes, responsibilities(pet, chores)

Family stresses or conflicts: socioeconomic status, job loss

Any family member deceased? age of victim at loss, cause of death, divorce, remarriage, and what was the reaction to these events

Childhood diseases/injuries/accidents/operations/loss of consciousness/severe reactions - can indicate manner of handling early problems, adaption, overcompensations

Childhood habits? bedwetting, thumb sucking, tantrums, nail biting, stuttering, cruelty, nightmares, night terrors

Religious upbringing: what faith, attendance, influence

Schooling: grades, difficult courses, tutoring, summer school, discipline in school(authority)

Occupational history: summer jobs, work relationships, responsibility

High school: strong/weak subjects, clubs, interests, hobbies, ambitions, discipline problems

Socialization: friends, dating

Authorities: arrests, shoplifting, law breaking

Sports: interests or pushed, individual or team, sport ability

Early evidence of motivation to fly?

What significant or outstanding events influenced this person?

PSYCHO-SOCIAL

This includes personal factors, job factors, supervision factors, peer factors, and interpersonal factors.

Complete an adapted Life Events Scale (LES) (Holmes and Rahe, 1967) for the last 24 months on victim.

Complete a separate LES for the future 5 months- anticipated events are also stressful and energy consuming.

Ego: self-satisfaction(self-esteem) derived from job (dis)satisfaction and role (job, spouse, parent) (dis)satisfaction. Family, peers, supervisors and friends all influence how we feel about ourselves.

Displays of confidence (over/under)

Displays of pressing, impressing others, proving self, showing off

Why in current job? Why wanting to fly? (motivation)

Concern for others: spouse, children, friends, parents, peers, crew, passengers, others (ground, maintenance, ATC) A pattern varying from pure self-centeredness to overconcern for others may emerge or one way at home and another on the job.

JOB FACTORS

Job relationships: Supervisor: respects, spiteful, anti-authority, cooperative

Peers: cooperative, supportive, critical, back-stabbing, competitive, team player/lone ranger, loafer, worker, joiner, leader, dependable

Support personnel: acts superior, tantrums, angry, demanding, cooperative

Subordinates: leadership style/skills- good or poor

Crewmembers: conflicts, rebel/team member, influence on crew, use crew effectively, attitude(cooperative/conflictive)

Job stresses: competition, promotions, flying upgrades, additional duties/jobs, responsibility changes, work hours, trouble with boss, peers, or subordinates, firing others, deadlines, unit/company morale, strikes, leadership/management changes, evaluations, boss pressures, peer pressures, financial changes in company(mergers; bankruptcy)

Off Job Factors: Family problems/conflicts with spouse, children, ex-spouse, parents, sibling(s)
Any deaths, injuries, or illnesses of significant family members and what effect?
Problems with friends, car, credit cards, bank, bought items, house, church, clubs, schools, insurance, accidents, finances, politics -All those little annoying hassles and irritants that accumulate.

PSYCHOLOGICAL

Errors made: Omission

- Commission
- Extraneous acts
- Sequential error
- Time error
- Slips
- Mistakes (judgement/decision error)

Training:

- Problem areas in pilot training and influence on this accident
- Problems in transfer of learning?
- Problems in response sets (habit patterns)
- Problems in skill, proficiency, memory (immediate, snort or long term), procedures, or ability
- Expert/novice automaticity

Perception/Misperception - history of problems using senses to read information

- Sight - visual cues, instruments, central vision, peripheral vision

- Hearing - aircraft noises, warning signals, radio or intercom communications

- Proprioceptors - "G" forces, turns, cross controlling

- Smell - fumes, smoke

- Touch - controls, gloves

- Attention - History of attention problems - distractions, fascination, fixation, time distortion, chunnelization, inattention, boredom, complacency, vigilance, poor cross checking, head in/out of cockpit, habituation
(fatigue is a cross factor)

- Fatigue - physical, mental, acute, chronic, sleep deprivation, circadian rhythm, work schedule, weekend duty, night duty

- Stress - (psychosocial is cross factor)

- coping mechanism deterioration - fight/flight, resistance (trying harder to maintain control), exhaustion

- Stress - Emotional Signs

- Apathy - "blahs", loss of pleasure, sad

- Anxiety - restless, agitated, insecure, feels worthless

- Irritability - oversensitive, defensive, arrogant, argues, hostile, insubordinate

- Mental fatigue - preoccupied, poor concentration, inflexible

- Overcompensation - (Denial) - exaggeration, overworks to exhaustion, denies problems or symptoms, suspicious/paranoid

PSYCHOLOGICAL (2)

Stress

Behavioral Signs

Withdrawal (avoidance) - social isolation, work related - reluctance to accept new responsibilities, neglects present responsibilities

Acting out - alcohol abuse, drug abuse, gambling, spending spree, promiscuity

Work infraction - tardy, poor appearance, poor personal hygiene, accident proneness

Legal infractions - indebtedness, shoplifting, traffic tickets, pilfering

Fights - spouse/child abuse

Personality/Lifestyle

Discipline - control, punctuality, planning, preparation, rules conformance, messy, perfectionistic, organized, disorganized, methodical, haphazard, get homeitis

Normal/Basic personality - relaxed, intense, jovial, gregarious, withdrawn, outgoing, angry, hostile, sarcastic, prejudiced, aggressive, assertive, nonassertive, dependent, independent

Communication style - direct, devious, verbal, passive-aggressive, outspoken, quiet

Life style - "crash as one lives" theory, stable/unstable, orderly/disorderly, self-control/others in control, types of music, songs, and literature preferred, works of art, books, and pictures in home, how car driven, bumper stickers, how aircraft flown, contents of desk top and drawers, how money spent and saved

Temperament - emotional control/outbursts, displays of anger - throw or break things

Personality type - Type A

Type B

Anxious reactive

Pilot type/hazardous thought patterns

Effective/Ineffective pilot traits

Macho

Insecure

Anti-authority

Invulnerable

Impulsive

External-control

Copilot syndrome

Coping styles - personality changes (home, job, driving, flying)
changes under stress

Defense mechanisms - rigid (only one) or flexible (different ones)

primitive- denial, blames others

advanced - intellectualization, rationalization

habitual use/ only used under severe stress

PSYCHOLOGICAL (3)

Emotions: behavior/moods

Depression signs? sleep disturbances
appetite changes
loss of interest, pleasure, energy
fatigue
menstrual irregularities
impaired memory
difficulty thinking, concentrating
isolation

Anxiety signs? excessive worry
fears - anticipations
insomnia
poor concentration
rapid heart rate
chest constriction
stomach problems

Emotional displays? recent change is THE key
intense emotions displayed
anger, rage
throw objects, break things
yell, snap
get even
overcontrolled
become passive
become overcritical

Other psychological factors:

Burnout - disenchantment with job, roles, life

Suicidal talk or actions

Fear of flying - normal
decompensation
phobia

PHARMOCOLOGICAL

Medication: self-medication
use other's medications (spouse, friend)
over the counter medication - frequent user?
prescription medications - from flight surgeon or other MD - for what?
how closely follow prescription?
recreational drug use?

Tobacco habits: type
frequency
amount
increase with stress?
any recent changes? (increase, decrease, quit)

Alcohol habits: type
frequency
amount
increase with stress?
any recent changes?
when - parties, end of day, numb feelings
blackouts?
interfere with job, family, or social life?
goes on wagon?
severe mood changes under the influence?

Caffeine: frequency
amount
recent changes?

Quinine water: use? drug affects flying

Vitamins: heavy use?

PHYSIOLOGICAL

Hypoxia: Hypemic - blood donation, hemorrhage, anemia, drugs
Stagnant - cold temperatures, high "G" forces
Histotoxic - narcotics, alcohol
Hypoxic - high altitude, lung disease

Hyperventilation - any proneness to this under stress?

Acceleration Loss of Consciousness(LOC)

Spatial/ roll axis disorientation - Any proneness
Vestibular: leans, graveyard spin, coriolis illusion
Proprioceptive: seat of pants
Visual: vection, false horizon, autokinesis, illusions

Decompression sickness - Any proneness: parathesias, bends, chokes, Central Nervous System

Diet - hypoglycemia? habit of not eating or sugar loading?
Crash diet? Medically approved diet?

Air Sickness - Proness? active, passive, medication for?

Dehydration - habitual?

Cold - hypothermia

Noise - Hearing protection used/not used

Vibration - sources and effects

Fatigue - acute/chronic?
accumulative
circadian rhythm
phase point/phase shift

Self Imposed Stresses - self medication
alcohol
tobacco
caffeine
diet
exercise
psychological
fatigue

PHYSICAL

Condition - type and frequency of conditioning exercises

Stamina - endurance, resistance against fatigue and illness

Perceptual problems -

Vision - eyesight, glasses, contact lenses

Hearing - acuity, noise damage

Balance and spatial orientation

Touch - numbness, gloves, protective clothing

Anthropometry - fit, sight, reach, range of motion of limbs to controls

"G"-tolerance - knowledge, practice on ground, anticipate, last exposure,
reaction to "G"'s (thrill, hate, hard work, frightened)

Stress - Physical Signs

Preoccupation with illness - intolerance of/dwells on minor ailments

Frequent illness - actually sick

Physical exhaustion

Selfmedication

Somatic indicators

Headache

Insomnia - initial

recurrent awakening

early morning rising

Change in appetite

weight gain

weight loss (more serious)

Indigestion

Nausea

Vomiting

Diarrhea

Constipation

Sexual difficulties

PATHOLOGICAL

Illnesses -

- minor

- major

- effects on person

- pursuit of receiving medical treatment

- conformity to treatment

Allergies -

- seasonal

- permanent

- medication compliance

Diseases-

- acute

- chronic

- effect upon daily living and flying

Operations -

- type

- effect upon daily living and flying

Accidents/Injuries

- effect upon flying

Loss of Consciousness

- events

- effects upon flying

LIFE EVENTS SCALE

LIFE EVENTS SCALE

Personal injury or illness (53) what? _____
 Outstanding personal achievement (28) what? _____
 Revision of personal habits (24) what? _____
 Change in recreation (19) how? _____
 Change in church activities (19) how? _____
 Change in sleeping habits (15) how? _____
 Change in eating habits (15) how? _____
 Vacation (13) where? cost? how long? _____
 Christmas (12) how spent? where? _____

Death of a spouse (100) how?
Divorce (73) when?
Marital separation (65) when?
Death of a close family member (63) who?
Marriage (50) when?
Marital reconciliation (45) when split?
Change in family member's health (44) who? what?
Pregnancy (40) first?
Gain a new family member (39) who?
Arguments with spouse (35) how?
Child leaving home (29) how?
Trouble with in-laws (29) what?
Spouse begins or stops work (26) why?
Change in family get-togethers (15) how?

Change in financial state (3a) how?

Mortgage over \$10,000 (31) for what?

Foreclosure of mortgage or loan (30) what?

Mortgage or loan of less than \$10,000 (17) what?

Jail term (53) for what? _____
 Sexual difficulties (39) what kind? _____
 Death of a close friend (37) who? _____
 Begin or end school (26) what? _____
 Change in living conditions ((25) how? _____
 Change in schools (20) how? _____
 Change in residences(20) where? _____
 Change is social activities (18) how? _____
 Minor violations of the law (11) what? _____

Fired at work (47) _____
Retirement (45) forced? _____
Business readjustments (39) what? _____
Change line of work (36) what? _____
Change responsibilities at work (29) how? _____
Trouble with boss (23) what? _____
Change work hours or conditions (20) how? _____

Sources: Adapted from T. H. Holmes and R. H. Rahe. "The Social Adjustment Rating Scale." Journal of Psychosomatic Research, vol. 11, 1967, pp. 213-218. Copyright 1967, Pergamon Press Ltd. Also adapted from J. C. Quick and J. D. Quick. Organizational Stress and Preventive Management. Table 5.3, p. 124. Copyright 1986. McGraw-Hill Book Co.

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Appendix 1

The psychological profile falls under that area called human factors. Human factors

has been getting a lot of attention and blame as "the" cause for accidents. Human factors

is such a broad area and includes so many interrelated factors. The purpose of the

psychological profile is to help track down those human causes and use in preventing future

accidents. One is cautioned about "armchair quarterbacking" or post-incident

investigating, because often an older and mature expert is called in to make a value

judgement on a younger less mature novice who was involved in an accident. Also the

information gleaned from a psychological profile may not even be relevant to the accident.

But then again the information may reveal facts that open the door to the major cause of an

accident. The profile is merely another tool that can be helpful or misused. It can be a

tool to answer a specific question like ruling out a suicidal motive or it may be used as

fact finding and data collection on accident victims. A few psychological skeletons may be

found that have no real bearing on the accident-being very similar to finding that

overlooked wrench in the wreckage that had no contribution to the accident.

The profile helps give an idea of the overall lifestyle, habits, strengths,

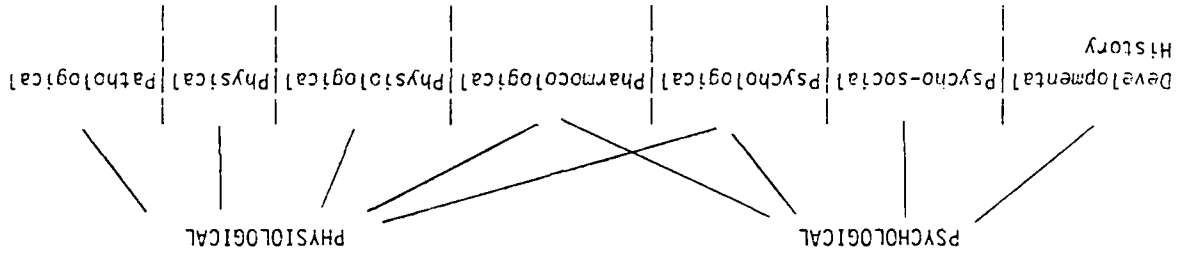
weaknesses, and personality of the crew. Below are guidelines and a chart.

1. Be brief and use simple language whenever possible.

2. Do not generalize or make inferences unsupported by fact.

3. Use illustrations where possible.

4. Remember that the purpose of your profile is to communicate your observations/data to others.



END

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DT/C